

# HORSESHOE DESIGN-BUILD PROJECT



## Pre-QS Workshop

**Kelly Selman, P.E.**

**TxDOT, Dallas Deputy District Engineer**

**January, 9, 2012**

# HORSESHOE DESIGN-BUILD PROJECT

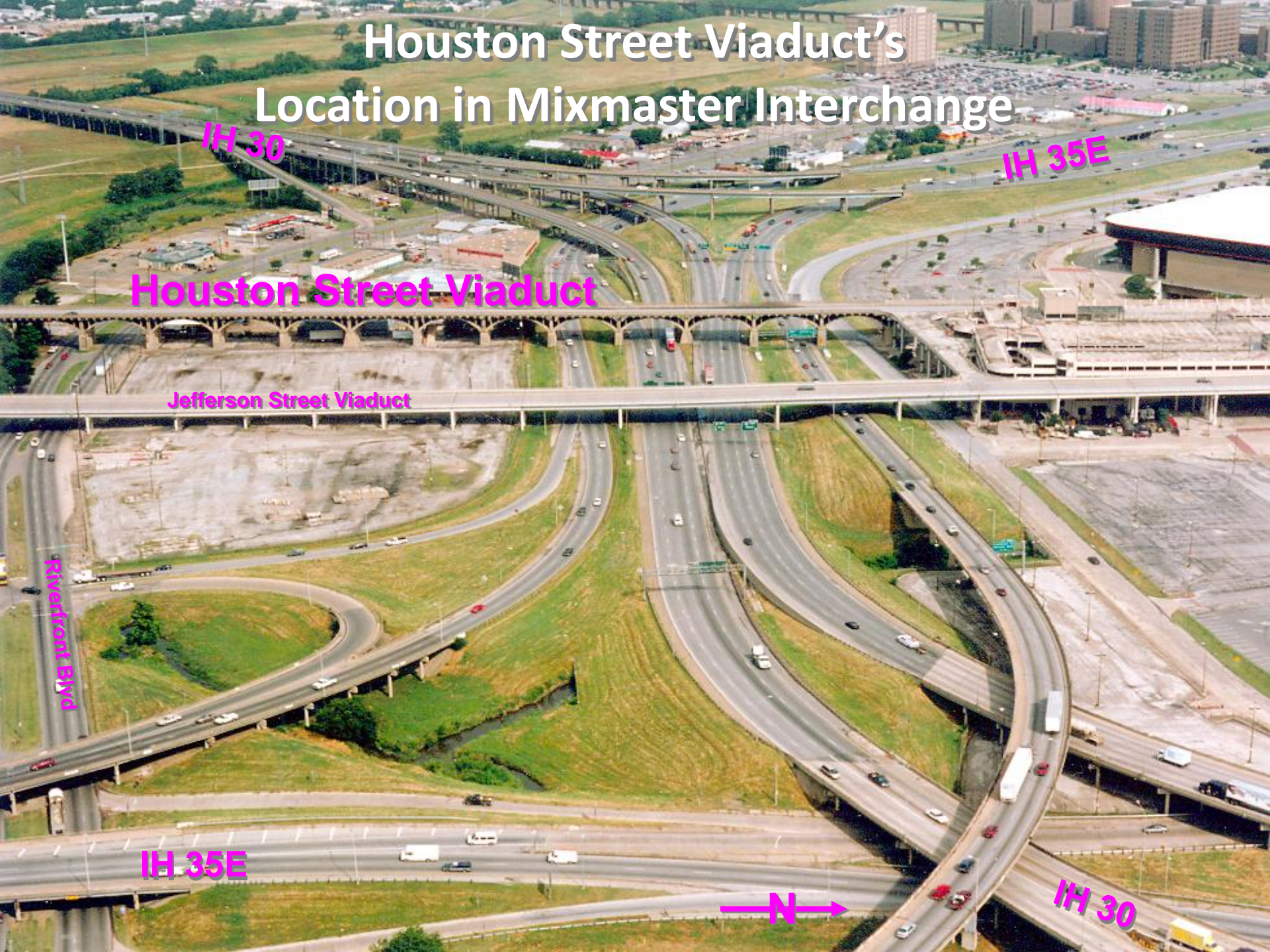
## Project Location

Loc  
In t





# Houston Street Viaduct's Location in Mixmaster Interchange



IH 30

IH 35E

Houston Street Viaduct

Jefferson Street Viaduct

Riverfront Blvd

IH 35E



IH 30



# HORSESHOE DESIGN-BUILD PROJECT

## Purpose and Need

Increasing maintenance tried costs 460,000 vehicles

### Nation's 10 worst commuting trouble spots

Here are the worst commuting "choke points" in the USA, according to the American Automobile Association:

► **Boston.** Interstate 93 north and south, Boston's central artery cuts an elevated pass through downtown. It was built in the 1950s to carry 90,000 cars daily, but it now overflows with 190,000

► **Dallas.** Interstate 35 at Interstate 30. Known as the "Mix Master" by local motorists, these two highways merge and struggle to carry more than 200,000 vehicles a day from downtown through the steep hills of "The Canyon."

► **Houston.** U.S. 59 at the 610 loop. Only one lane exits on U.S. 59 to the 610 loop, causing delays in

section has a traffic volume of 169,979 vehicles a day, and delays are estimated at 7.4 million hours per year.

► **New Orleans.** Interstates 10 and 610, eastbound. Traffic routinely backs up at this interchange every morning. Although it has recently undergone construction to ease the problem, a bottleneck still

terstate 90 interchange. This area has an average daily volume for both directions of 260,000 vehicles, with an average accident rate of 5.6 accidents per 1 million vehicles. However, this section typically operates below capacity for 10 hours per day. There is lots of weaving and merging through the collector-distributor lanes.

Washington, D.C., area. field, Va., Interstates 495 and 95. "The Mixing Bowl" is the major interstates of the metro area converge, resulting volume of 400,000 vehicles and 179 reported crashes a two-year period. The interchange is undergoing construction is expected to last eight months and is the second-largest project in the USA.

Source: American Automobile Association

Milk truck falls from ramp, spilling 5,000 gallons



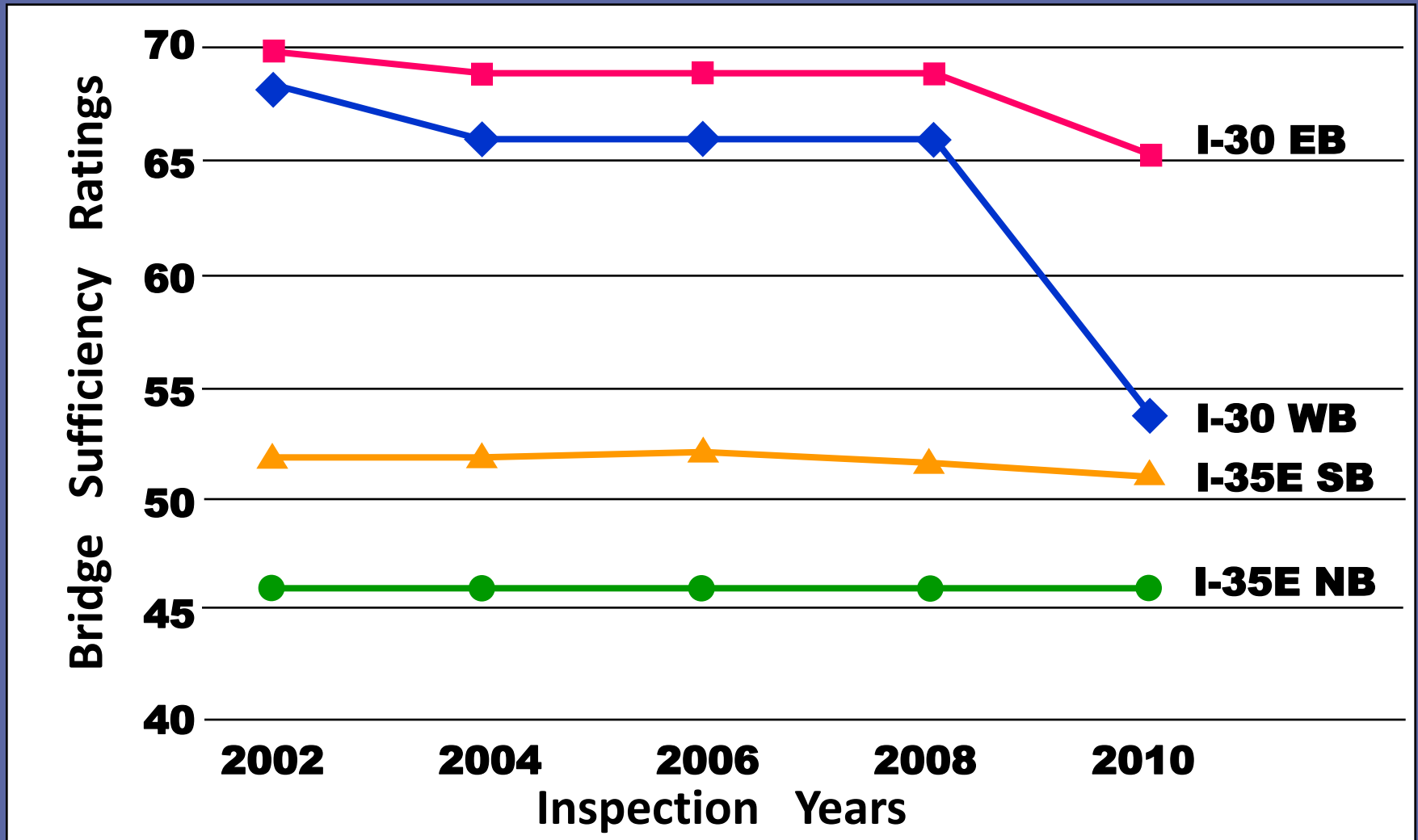
downtown traffic



The Dallas Morning News: Erich Schlegel

# HORSESHOE DESIGN-BUILD PROJECT

## Purpose and Need



# **HORSESHOE DESIGN-BUILD PROJECT**

## **Horseshoe Project Management**

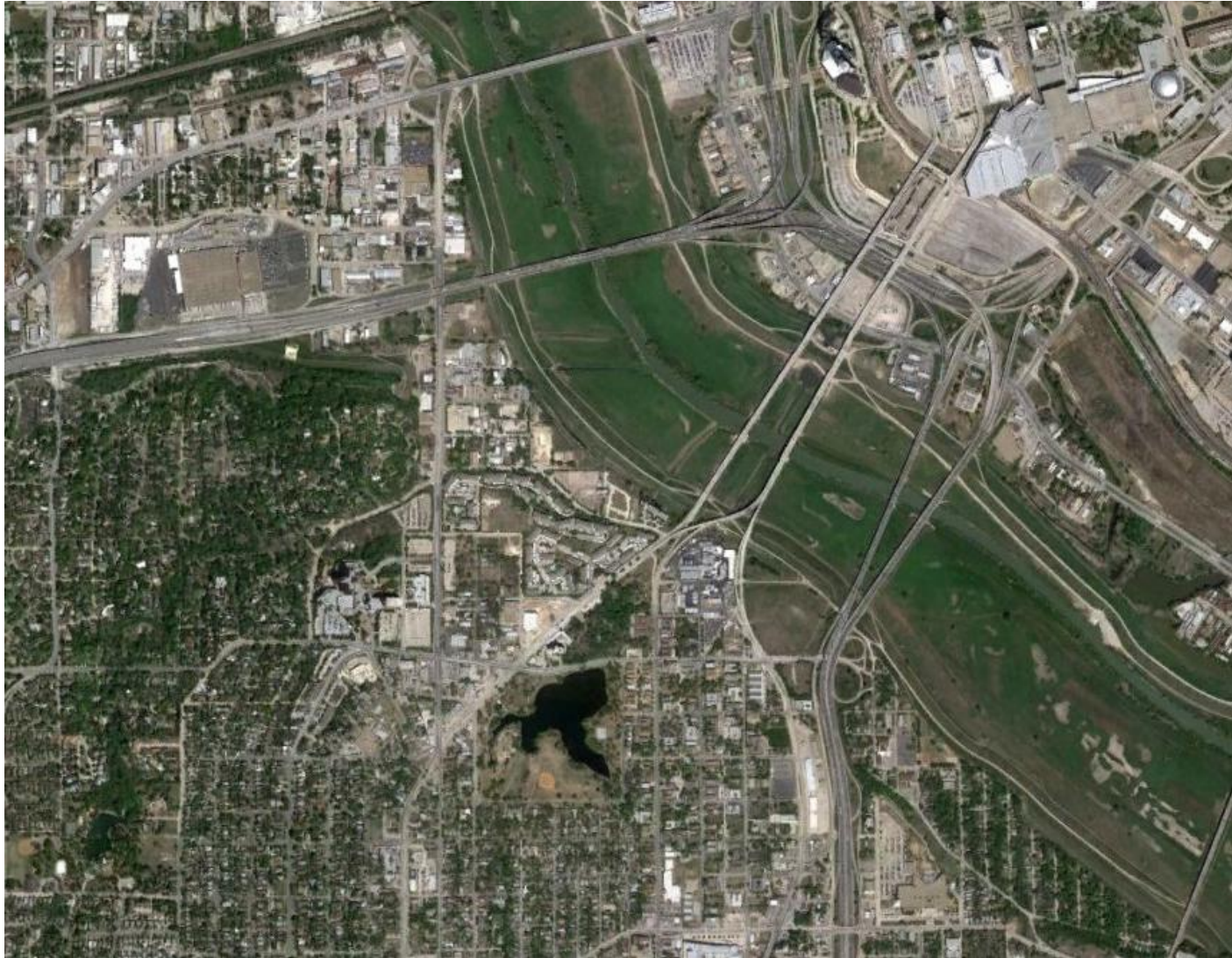


**Duane Milligan, P.E.**  
**Horseshoe Project Engineer**  
**TxDOT Dallas District**



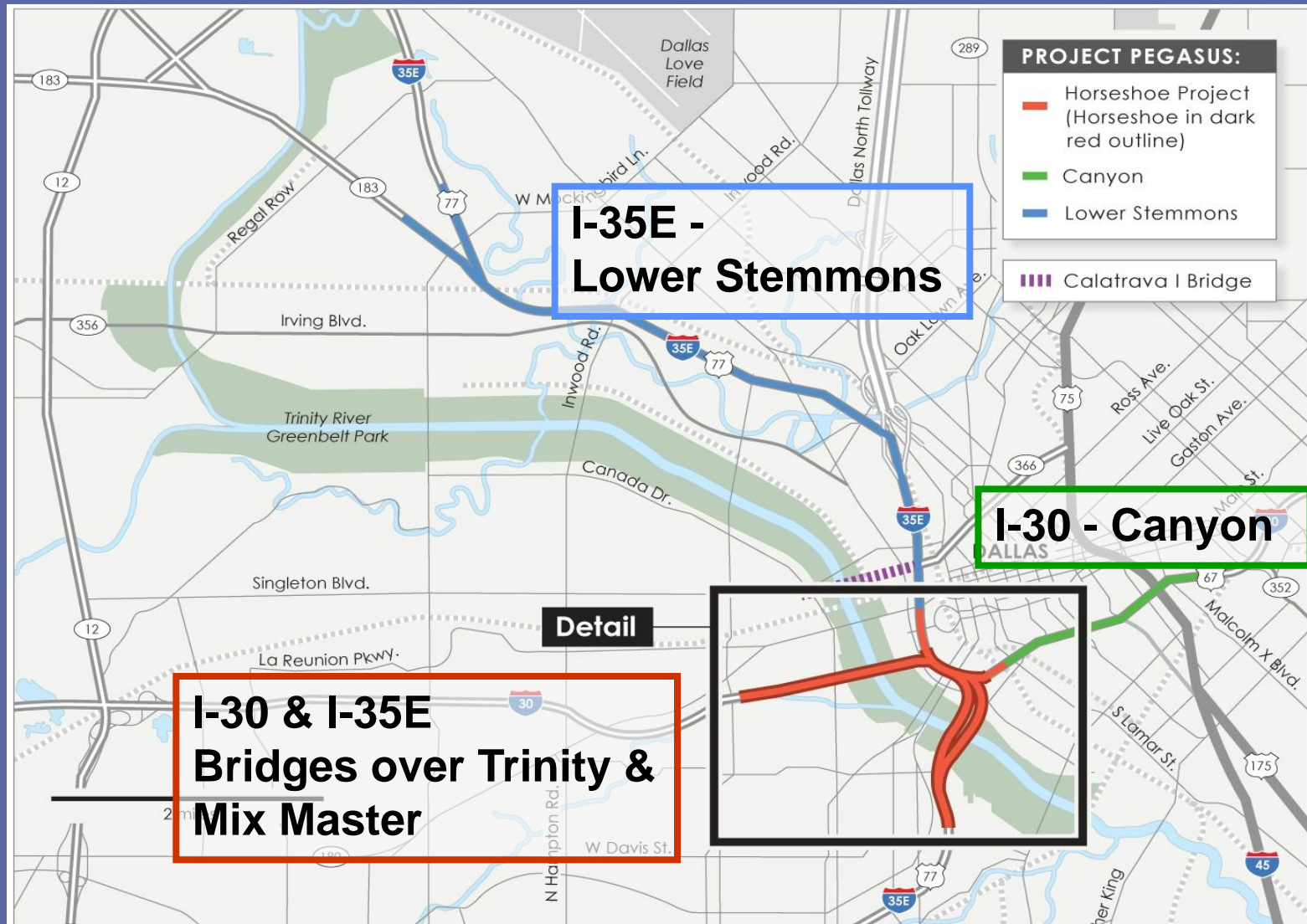
# HORSESHOE DESIGN-BUILD PROJECT

## Proposed Project



# HORSESHOE DESIGN-BUILD PROJECT

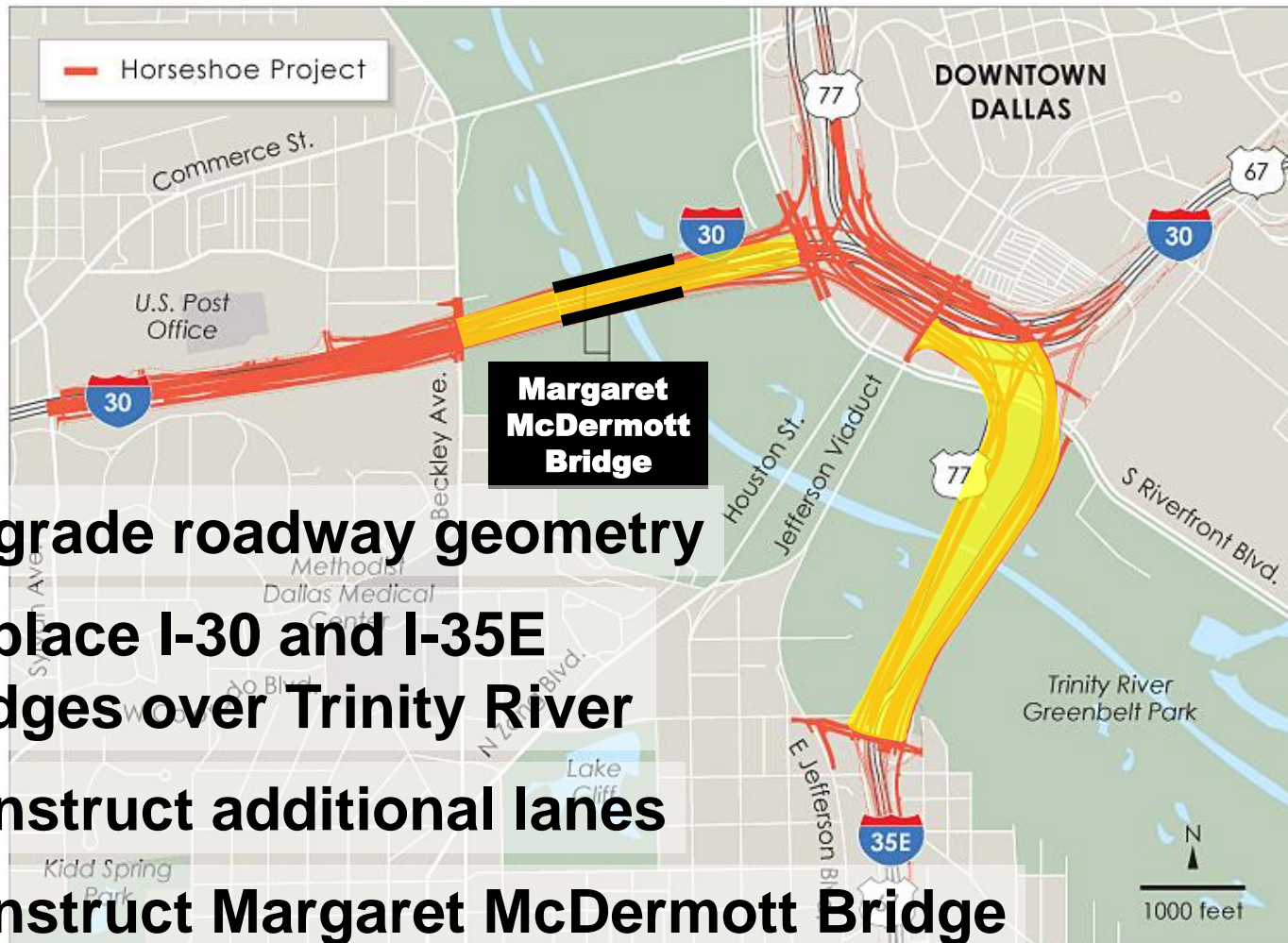
## Proposed Project





# HORSESHOE DESIGN-BUILD PROJECT

## Proposed Project



**Upgrade roadway geometry**

**Replace I-30 and I-35E  
bridges over Trinity River**

**Construct additional lanes**

**Construct Margaret McDermott Bridge**

# HORSESHOE DESIGN-BUILD PROJECT

## Approved Funding

### Cost Estimate

Construction	\$620
Margaret McDermott Bridge	\$80
<hr/>	
SUB-TOTAL	\$700
Design, Testing & Construction Mgmt.	\$56
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SUB-TOTAL	\$756
R.O.W. & Utilities	\$62
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<b>TOTAL</b>	<b>\$818</b>

### Dedicated Funding Sources

Federal Allocation	\$181.4
Prop-12 Major Bridges	\$400.5
SH 121 RTR	\$72
Remainder Prop-12 V1 (MO 112473)	\$10
Remainder Prop-14 (MO 111680)	\$13.3
Dallas District's Prop-12 V2	\$53.7
NCTCOG Prop-12 V2	\$87.1
<hr/>	
<b>TOTAL</b>	<b>\$818</b>



# **HORSESHOE DESIGN-BUILD PROJECT**

## **Work Complete / Underway**

**Commission approved funding**

**Commission approved “Design-Build”**

**Margaret McDermott bridge: 50% design complete**

**I-30: 30% design complete**

**I-35E: 30% design underway**

# **HORSESHOE DESIGN-BUILD PROJECT**

## **Next Steps**

**Draft RFP – March / April 2012**

**Entire Project: 30% design – April 2012**

**Margaret McDermott bridge: 90% design –  
~~June~~ April 2012**

**Issue RFP – July 2012**

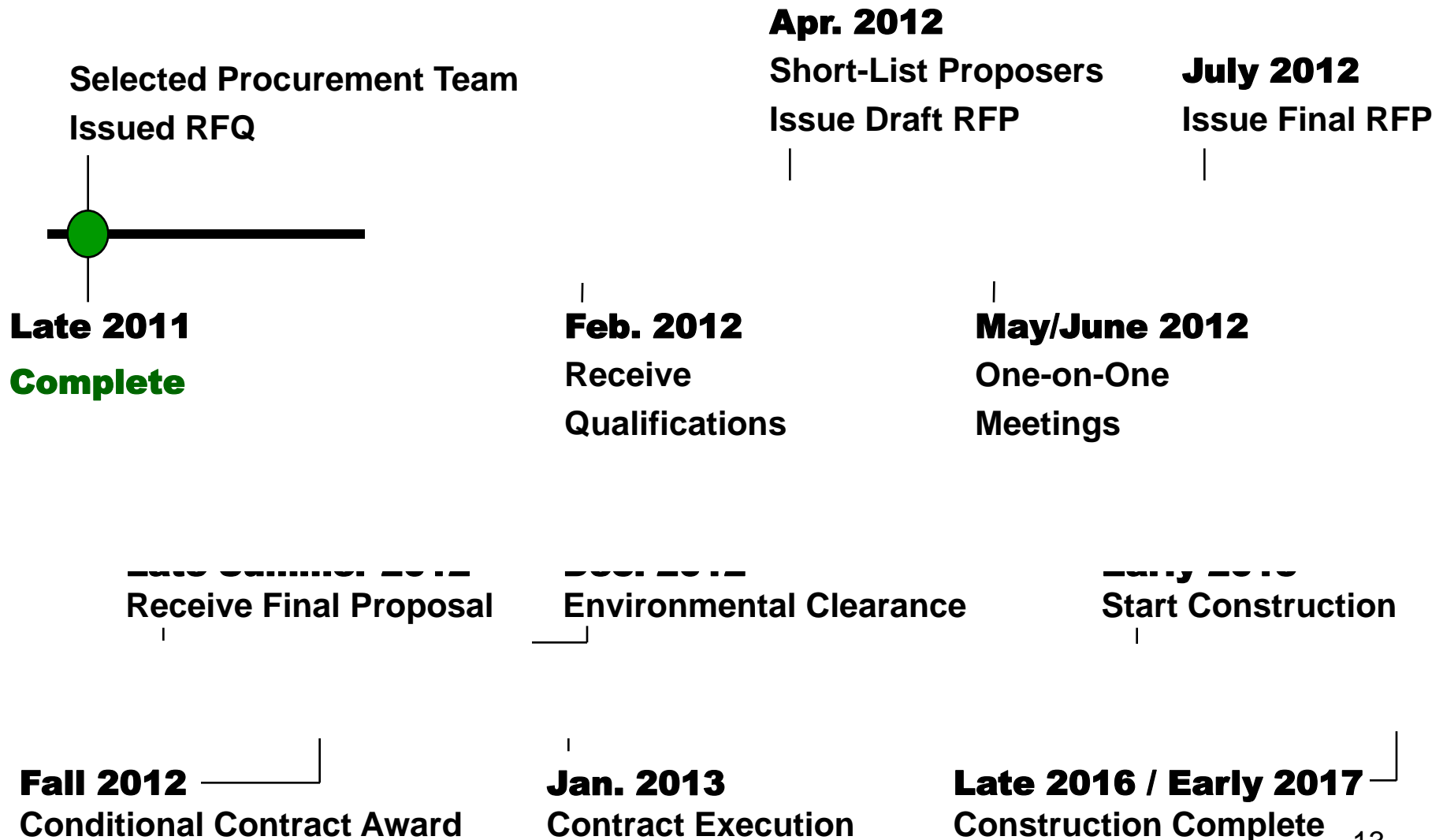
**USACE 408 Permit – Fall 2012**

**Environmental Clearance – December 2012**



# HORSESHOE DESIGN-BUILD PROJECT

## Next Steps: Preliminary Timeline



# **HORSESHOE DESIGN-BUILD PROJECT**

## **Margaret McDermott Bridges**



**Margaret McDermott Bridges on the I-30 EB  
and WB frontage roads**

**Designed and engineered to 100% by Santiago  
Calatrava LLC**

**Under contract with the City of Dallas**

**Built by the Design-Build Contractor**



# **HORSESHOE DESIGN-BUILD PROJECT**

## **Margaret McDermott Bridge Design**



**Charlie Quade, P.E.**  
**Huitt – Zollars Inc.**

# HORSESHOE DESIGN-BUILD PROJECT

## I-30 Frontage Road Bridges



# HORSESHOE DESIGN-BUILD PROJECT

## I-30 Frontage Road Bridges

This presentation provides a summary of the “Signature” aspect of the bridge and includes reference projects to indicate the level of workmanship and quality required for the Frontage Road Bridges



# HORSESHOE DESIGN-BUILD PROJECT

## I-30 Frontage Road Bridges

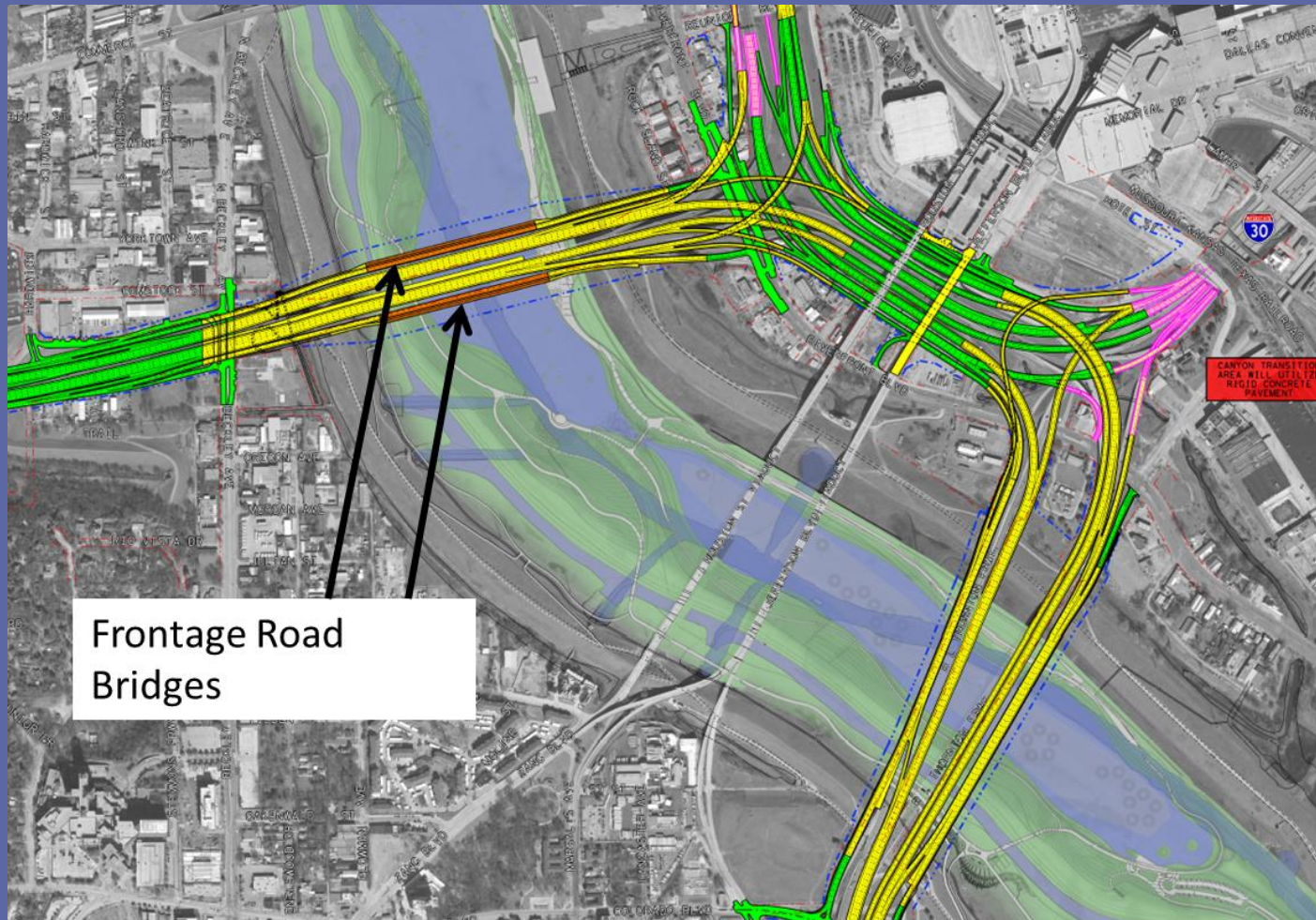


### ■ Santiago Calatrava, LLC Company Profile

- Established 1981
- Principal Santiago Calatrava, Architect and Engineer
- Offices: Zurich, New York, Valencia
- 100 employees worldwide
- Worldwide experience in many forms of construction
- Excellence in bridge design
- Proven experience in delivering large scale projects
- Specific experience in Dallas

# HORSESHOE DESIGN-BUILD PROJECT

## I-30 Frontage Road Bridges



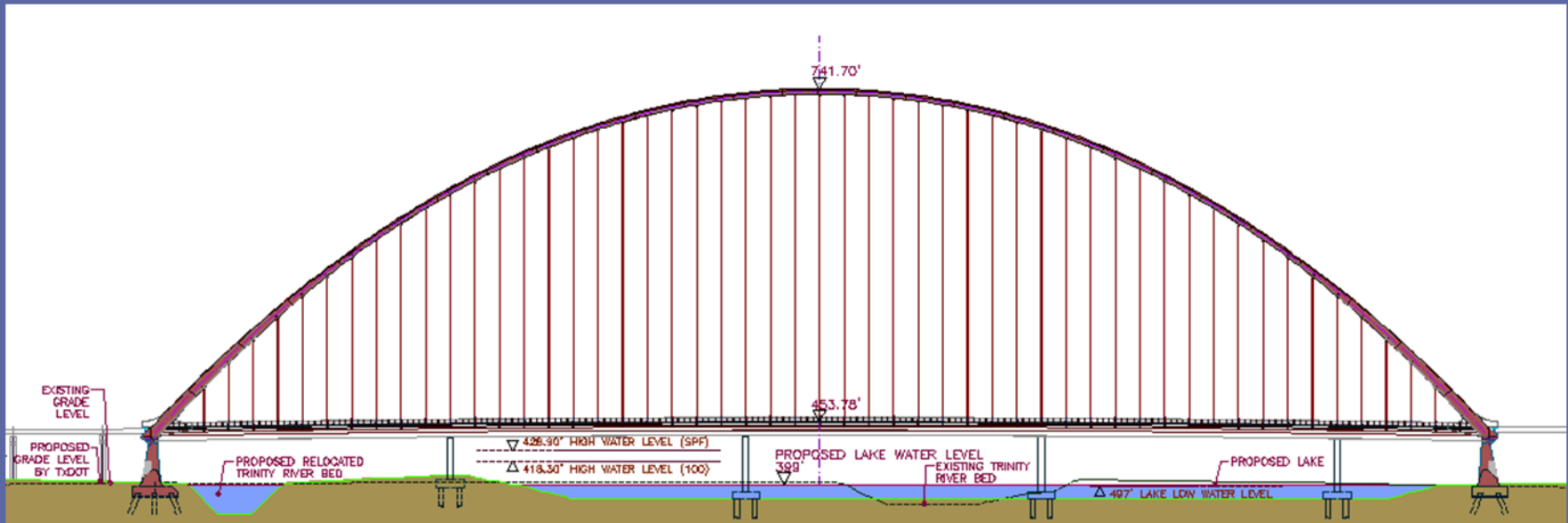




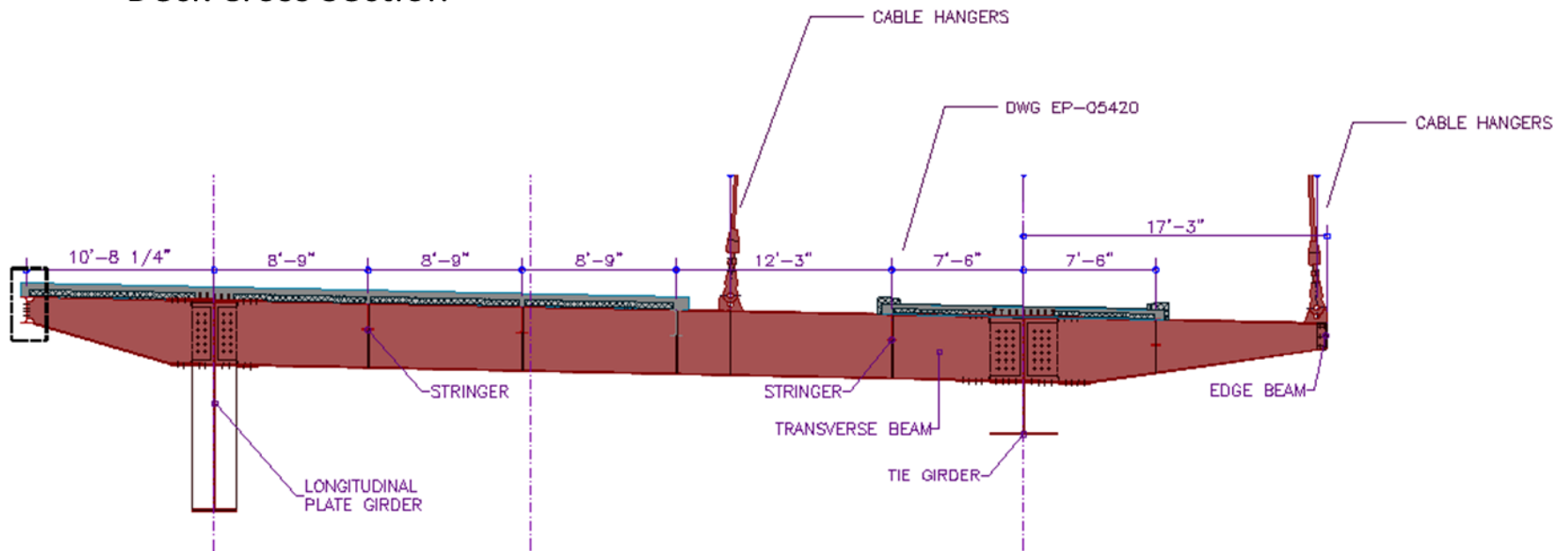
# HORSESHOE DESIGN-BUILD PROJECT

## I-30 Frontage Road Bridges

### Bridge Elevation



## Deck Cross Section

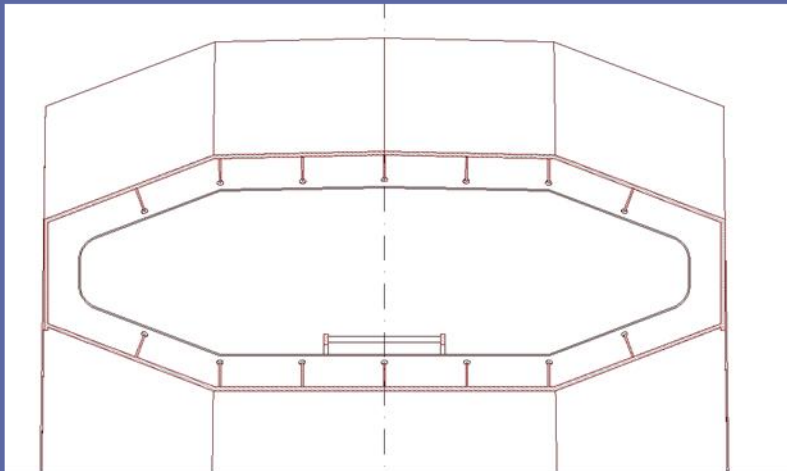


# HORSESHOE DESIGN-BUILD PROJECT

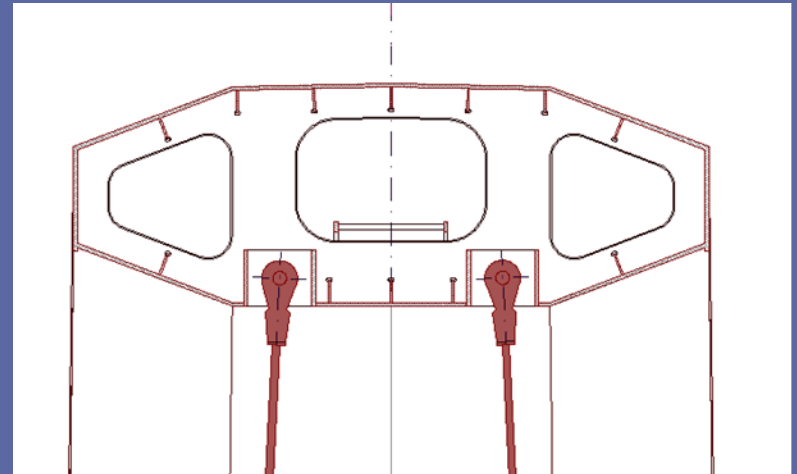
## I-30 Frontage Road Bridges



Arch Cross Section



Between Cables



At Cable Anchorage



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## I-30 Frontage Road Bridges

Possible Arch Construction



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## I-30 Frontage Road Bridges

QUALITY - Welding



# HORSESHOE DESIGN-BUILD PROJECT

## I-30 Frontage Road Bridges



QUALITY - Steelwork Finishing





# HORSESHOE DESIGN-BUILD PROJECT

## I-30 Frontage Road Bridges

QUALITY - Concrete Works



# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



Reggio Emilia - Italy





# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



Reggio Emilia - Italy



# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



### Light Rail Train Bridge - Jerusalem





# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



### Light Rail Train Bridge - Jerusalem



# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



### Margaret Hunt Hill Bridge - Dallas





# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



### Margaret Hunt Hill Bridge - Dallas



# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



Samuel Beckett Bridge - Dublin





# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



Samuel Beckett Bridge - Dublin



# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



Bridges over the Hoofdvaart – The Netherlands



# HORSESHOE DESIGN-BUILD PROJECT

## Reference Projects



Bridges over the Hoofdvart – The Netherlands



# **HORSESHOE DESIGN-BUILD PROJECT**

## **Horseshoe Project Management**



**Ceason Clemens, P.E.**

**Horseshoe Deputy Project Engineer**

**TxDOT Dallas District**



# **HORSESHOE DESIGN-BUILD PROJECT**

## **Project Challenges**

**Maintaining traffic under construction**

**Construction of Margaret McDermott bridge**

**Reconstruction of 2 major freeway interchanges**

**Crossing of Trinity River Levees**

**Accommodating future Trinity Lakes Project**

# **HORSESHOE DESIGN-BUILD PROJECT**

## **QS Evaluation**

**Project Qualifications and Experience (65%)**

**Statement of Technical Approach (35%)**

# **HORSESHOE DESIGN-BUILD PROJECT**

## **QS Evaluation**



### **Project Qualifications and Experience (65%)**

- Experience with developing, designing and constructing comparable projects (20 points)
- Experience of the management team and Key Personnel for the project (16 points)
- Success of the Proposer and individual team members, management team and key personnel in working together on comparable projects and responsibilities (8 points)
- Stability, strength and likelihood of success of the proposed management structure and team (8 points)
- Experience with performing capital maintenance on comparable projects (8 points)
- Responsiveness toward the DBE involvement, objectives and goals (5 points)

# **HORSESHOE DESIGN-BUILD PROJECT**

## **QS Evaluation**



### **Statement of Technical Approach (35%)**

- **Demonstrate a full understanding of the Project's scope and complexity (20 points)**
- **Demonstrate a complete understanding of Project risks and potential solutions that may arise during all Project phases, including design, construction, and capital maintenance (10 points)**
- **The general approach to public involvement recognizing unique characteristics of this Project and its impacts on the community (5 points)**



# **HORSESHOE DESIGN-BUILD PROJECT**

## **Procurement Schedule**



<b>RFQ Issued</b>	<b>December 9, 2011</b>
<b>Qualification Statements Due</b>	<b>February 22, 2012</b>
<b>Short-list Announced</b>	<b>March 30, 2012</b>
<b>Release Draft Request For Proposals</b>	<b>March 30, 2012</b>
<b>30% Plans Complete</b>	<b>April, 2012</b>
<b>90% Signature Bridge Plans</b>	<b>April, 2012</b>
<b>Industry Review One-on-One Meetings</b>	<b>May &amp; June, 2012</b>
<b>100% Signature Bridge Plans</b>	<b>June 30, 2012</b>
<b>Issue Final RFP</b>	<b>July, 2012</b>
<b>Proposals Due</b>	<b>September, 2012</b>
<b>Conditional Award</b>	<b>October, 2012</b>
<b>USACE Permit</b>	<b>Fall, 2012</b>
<b>Environmental Clearance</b>	<b>December, 2012</b>
<b>Contract Execution</b>	<b>January 2, 2013</b>

# **HORSESHOE DESIGN-BUILD PROJECT**

## **Delivering QS Submittals**



**Proposers are responsible for ensuring QS submittals are delivered by hand or courier on Wednesday, February 22, 2012 by 3:00 p.m. to:**

**Attn: Kelly Selman  
TxDOT, Dallas District  
4777 East Highway 80  
Mesquite, TX 75150**

**Any QSs received after the above date and time will be rejected and returned to the sending party unopened.**

# HORSESHOE DESIGN-BUILD PROJECT

## Responsibilities

Proposers are responsible for monitoring the Project Website for information concerning this procurement.

Proposers are advised that responses to questions posed at this workshop are considered to be on an informational basis and are not binding on TxDOT. The process for official questions and answers remains as given in the RFQ via e-mail to [horseshoe@txdot.gov](mailto:horseshoe@txdot.gov).

TxDOT will post responses to those questions of general application and requests for clarifications which TxDOT deems to be material and not adequately addressed in previously provided documents on the Project Website.

TxDOT will post any addenda to this RFQ on the Project Website.

# **HORSESHOE DESIGN-BUILD PROJECT**

## **Horseshoe Project Manager**



**Mr. Kelly Selman, P.E.**  
**Deputy District Engineer**  
**Texas Department of Transportation**  
**4777 East Hwy 80**  
**Mesquite, TX 75150**  
**Email: [horseshoe@txdot.gov](mailto:horseshoe@txdot.gov)**



# HORSESHOE DESIGN-BUILD PROJECT

## Questions

